

Notice of Allowability

Application No.

10/628,289

Examiner

Fred Ferris

Applicant(s)

GUPTA, GOVIND SHARAN

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 28 November 2006.
2. ☒ The allowed claim(s) is/are 1,2,4 and 7-12.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 20061215.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


FRED FERRIS
PRIMARY EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

1. *This Office Action is responsive to applicant's amendment filed 28 November 2006. Applicants have now canceled claims 3, 5, and 6. Amended claims 1, 2, 4, 7, and new claims 8-12 are now pending in this application and have been allowed over the prior art of record.*

Response to Arguments

2. *Applicant's arguments filed 28 November 2006 have been fully considered and are persuasive. The previous 35 USC 112(2), 101, and 102/103 rejections are now withdrawn in view of applicants' amendment to the claims and supporting arguments filed 28 November 2006.*

Allowable Subject Matter

3. *Claims 1, 2, 4, 7, and 8-12 are allowed over the prior art of record.*

The following is an examiner's statement of reasons for allowance:

Applicants are disclosing a computer based method for blast furnace mathematical modeling design of packed bed systems by obtaining data related to material properties of the packed bed, calculating the cavity size as a function of increasing gas velocity, and decreasing gas velocity using mathematical model and stresses/frictional forces and raceway hysteresis. This has been disclosed in the prior art of record.

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While these elements are individually disclosed in the prior art, the prior art of record does not meet the conditions as suggested in MPEP section 2132, namely:

*“The identical invention must be shown in as complete detail as is contained in the ... claim.” Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an **ipsissimis verbis** test, i.e., identity of terminology is not required. **In re Bond**, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).”*

In particular, the prior art of record does not disclose retrieving data parameters related to material properties of a packed bed system, in combination with the specific sequence of equation steps for determining cavity radius “R” by velocity correlation for both increasing gas velocity and decreasing gas velocity, as now required by independent claims 1 and 8. (See: claim 1 (29), (28), claim 8 (36), (33)) The prior art of record discloses elements of the claimed invention as follows:

- “Particle-scale modeling of gas-solid flow in Fluidization”, Yu et al: teaches blast furnace mathematical modeling design method for packed bed systems inclusive of, obtaining data related to material properties of the packed bed, calculating the cavity size as a function of gas velocity using a mathematical model, and stresses/frictional forces and raceway hysteresis. However, Yu does not explicitly disclose retrieving data parameters related to material properties of a packed bed system, in combination with the specific sequence of equation

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steps for determining cavity radius "R" by velocity correlation for both increasing gas velocity and decreasing gas velocity, as now required by independent claims 1 and 8.

- "Numerical simulation of the gas-solid flow in bed with lateral gas blasting", Xu et al: also teaches blast furnace mathematical modeling design method for packed bed systems inclusive of, obtaining data related to material properties of the packed bed, calculating the cavity size as a function of gas velocity using a mathematical model, and stresses/frictional forces and raceway hysteresis. However, Xu further does not explicitly disclose retrieving data parameters related to material properties of a packed bed system, in combination with the specific sequence of equation steps for determining cavity radius "R" by velocity correlation for both increasing gas velocity and decreasing gas velocity, as now required by independent claims 1 and 8.

The features noted above relating to the specific sequence of equation method steps, as now recited in independent claims 1 and 8, renders the claimed invention non-obvious over the prior art of record. Dependent claims 2, 4, 7 and 9-12 are deemed allowable as being dependent from independent claims 1 and 8 respectively.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


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Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 571-272-3778 and whose normal working hours are 8:30am to 5:00pm Monday to Friday. Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 571-272-3700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached at 571-272-2279. The

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